

GENDERED DETERMINANTS OF YOUTH UNEMPLOYMENT IN KENYA

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ABSTRACT

Purpose of the study: The study aimed at investigating the gendered determinants of youth unemployment in Kenya, focusing on how socio-economic, demographic, and institutional factors influence employment outcomes for young men and women.

Problem statement: Youth unemployment in Kenya has been on the rise from 5.15% in 1980 to 13.4% in 2024, with significant gender disparities. In 2023, 25.5% of young women were unemployed compared to 18.2% of young men. Female youth unemployment rates have consistently been higher than male youth unemployment rates from 1990 to 2024. The gender-specific dimensions of youth unemployment, however, remain under examined despite various policy interventions by the Kenyan government.

Methodology: The study employed a cross-sectional research design using data from the 2019 Kenya Population and Housing Census comprising a sample of 850,252 youth aged 18-34 years. The study applied a probit regression model to analyze the likelihood of unemployment based on gender-specific characteristics, with separate estimations for rural and urban areas.

Findings: The study found that age, education, skills, marital status, and residence significantly influence youth unemployment with clear gender and rural-urban differences. Returns to education diminished for young women at tertiary level (2.6%) compared to young men (4.2%), and at university level (2.5%) for young women relative to 3.7% for young men. Urban residence increased unemployment probability by 8.6% for young males and 14.8% for young females while skills training reduced unemployment rates for young males by more than double (3.2%) compared to young females (1.5%).

Conclusion: The study concluded that youth unemployment in Kenya is gendered and spatially differentiated. While female youth need targeted support, male youth should benefit from industry-linked school-to-work transition programmes. Long-term job creation could be boosted through labor-intensive sectors such as manufacturing, agribusiness, construction, and the digital economy.

Keywords: *youth unemployment, gendered determinants, rural-urban disparities, Probit model.*

INTRODUCTION

An individual is considered unemployed if they are “without work”, “available for work” and “actively seeking work” during a given reference period, according to the International Labour Organization (ILO, 2023:35). A similar definition is used by the Kenya National Bureau of Statistics which defines unemployment as when a person is able and willing to work but has not been able to secure a job.

The definition of youth varies from one situation to another, depending on different cultural traditions, social behaviors and laws. The United Nations defines youth as persons between the ages of 15 and 24 years (United Nations, 2013), whereas the African Union has a wider definition of youth between the ages of 15 and 35 years (African Youth Charter 2006). The Commonwealth Secretariat, on the other hand, defines youth as those aged 15-29 years (Commonwealth Secretariat, 2016) while Kenyan government defines the youth as individuals aged 18 to 34 (Government of Kenya, 2010). The definition employed in this study is based on the Kenyan age-based definition, which is appropriate given the current state of the labour market, national youth policy frameworks, and educational transitions.

Globally, youth unemployment is still rising. The global youth unemployment rate increased from 12.4% to 13.1% between 2012 and 2015 as a result of the 2008 financial crisis (ILO, 2016). This situation was made worse by the COVID-19 pandemic, which rendered 75 million young people unemployed in 2021 and 73 million in 2022 (ILO, 2022;2023). The global youth unemployment rate dropped to 13% in 2023, the lowest level in 15 years, but there are still significant gender disparities, with female youth unemployment at 13.3% and male youth unemployment at 12.8% (Statista, 2024).

Globally, developed economies generally exhibit lower youth unemployment rates than developing regions, underscoring pronounced global labour-market inequalities. Sub-Saharan Africa remains particularly affected, reflecting the combined pressures of rapid population growth, limited job creation, skills mismatches, and the insecurity associated with informal employment. This led to youth unemployment being gendered phenomenon, with young women experiencing less favorable labour-market outcomes than young men across the globe. These patterns point to gender-responsive policy interventions.

In 2016, youth unemployment rate was 6.8% and remained relatively stable, then rose from 9.1% in 2017 to 12.5% in 2019, before peaking at 13.6% during the pandemic and easing slightly to 12.0% in 2024. Over the course of that time span, young women consistently experienced higher unemployment than young men, with the gap particularly pronounced

among the uneducated, where long-term unemployment affected 63.6% of women compared with 18.7% of men (KNBS, 2023). Equally, women accounted for the majority of the youth under the Not in Education Employment or Training (NEET) population, underscoring persistent gender disparities in labour-market outcomes (World Bank, 2023). Young female labour force participation (47.3%) is still significantly lower than that of young men (60.8%). These inequalities not only curtail the economic potential but also signify the existence of deep, -rooted systemic barriers that prevent gender-equitable access to economic opportunities. Every year, about 800,000 young people in Kenya enter the workforce, surpassing the country's ability to create enough jobs (KNBS, 2024). This creates further economic challenges in terms of generating enough and sustainable formal and informal jobs that would sufficiently and effectively absorb the increasing number of young male and female entrants into the labour market.

Figure 1 shows unemployment rates by age cohorts, gender and residence. Gender, age and residence are vital in the determination of the labour market outcome which illustrate different variations as shown in Figure 1.

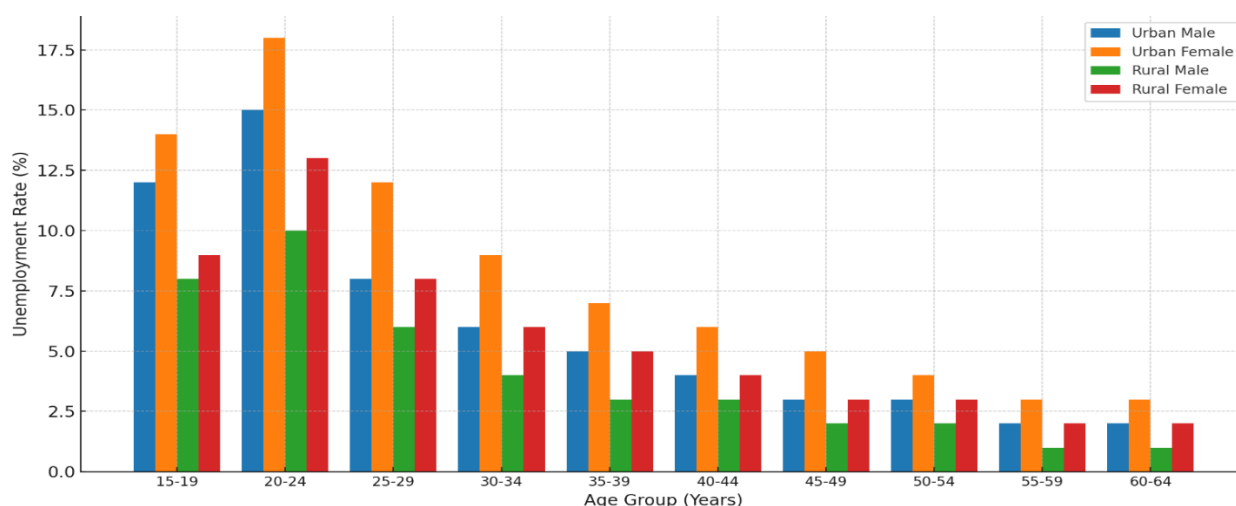


Figure 1: Unemployment rate in Kenya by age, gender and residence

Source: World Bank 2021/2022

Figure 1 illustrates that youth unemployment is much higher than adult unemployment across all groups, with rates peaking among those aged 20–24 years. Male youth unemployment is considerably high as compared to adult males in all age groups while female youth unemployment rates are the highest among all demographic groups. Across both urban and rural settings, female youth consistently experience higher unemployment rates than male youth. For the 20–24 age group, male youth unemployment is about 15% (urban), compared to 18% for females (urban) and 10% for males (rural) against 13% for females (rural). The data revealed that Kenya's youth joblessness problem is an economic, gendered, and spatial development challenge that requires urban job creation, rural diversification, and gender equity in labour market access.

Another key labour market indicator is employment to population ratio. Table 1 outlines population ratio to employment by residence and gender dynamics for different age groups.

Employment to population ratio is a key indicator measuring the percentage of a nation's working-age population that is working. As illustrated, Table 1 demonstrates that rural regions exhibit higher employment to population ratios (66.1%) compared to urban areas (58.6%).

Table 1: Percentage of employed population ratio by residences and age group

Age Group	Total			Rural			Urban		
	Total	male	female	Total	male	female	Total	male	female
15-64	63.4	64.3	62.6	66.1	63.9	68.2	58.6	65.1	52.3
15-19	16.9	16.8	17	18.6	18.5	18.7	12	11.3	12.5
20-24	52.8	52.3	53.2	58.3	54.3	62.2	44.3	48.9	40.6
25-29	71.4	74	69	77.1	75.3	78.8	64.4	72.5	56.9
30-34	78.8	81.2	76.6	83.4	82.1	86.4	72.2	80	64.7
35-39	81.8	83.9	79.7	85.7	84.9	86.4	76	82.4	69.4
40-44	83.7	85	82.4	87.2	86.2	88.3	77.3	82.9	71
45-49	85.8	86.8	84.7	89.1	88.2	90	78.6	84	71.9
50-54	86.1	87	85.1	89.5	88.7	90.3	77.8	83.5	70.8
55-59	87	88.1	86	90.9	90.5	91.2	75.2	81.8	67.4
60-64	84.7	85.9	83.6	89.8	89.9	89.7	64.3	71.8	56.1

Source: 2019 Kenya Population and Housing Census (KPHC): Labour force report.

Average employment to population ratio of rural youth is 59.3% while that of urban youth is 48.2%. This demonstrate significant disparities between urban and rural youth because of the different characteristics of rural economies where a higher proportion of the population may be engaged in agricultural and related activities at an early age. However, rural work by its very nature is different from urban jobs in a number of ways, and jobs in the rural areas are most of the time concentrated in the informal sector, thus providing lower wages, less security, and less access to social protection (ILO, 2020). The female employment to population ratio is higher in the rural areas at 68.2 % than in the urban areas at 52.3 % which shows their involvement in the rural informal sectors.

Gender gaps in the accessibility to jobs are evident as the unemployment rate among urban women was 18% in 2021, higher than the unemployment rate of 11.5% for urban men. Women are restricted in employment opportunities in rural areas due to their traditional roles and lack of vocational training. The variation of the unemployed population is evident by age, gender and residence settings. Table 2 show the distribution of unemployed population and illustrate a significant concentration of unemployment among young people, particularly in the 20–24 and 25–29 age cohort. It shows notable disparities in unemployment between rural and urban areas and across male and female youth.

Table 2: Distribution of the unemployed population by residence, gender and age group

Age Group			Rural			Urban		
	Total	%	Total	Male %	Female %	Total	Male %	Female%
15-64	2,713,132	100.0	1,345,079	62.4	37.6	1,368,053	51.5	48.5
15-19	287,239	10.6	179,941	59.4	40.6	107,298	49.1	50.9
20-24	610,542	22.5	282,527	58.6	41.4	328,015	47.0	53.0
25-29	569,006	21.0	251,435	61.6	38.4	317,571	50.3	49.7
30-34	420,877	15.5	198,579	63.0	37.0	222,298	51.6	48.4
35-39	274,415	10.1	135,081	65.7	34.3	139,334	54.4	45.6
40-44	210,031	7.7	108,871	67.7	32.9	101,160	57.0	43.0
45-49	141,104	5.2	74,790	67.4	32.6	66,314	58.5	41.5
50-54	93,144	3.4	51,581	67.0	33.0	41,563	58.9	41.1
55-59	63,298	2.3	35,557	64.9	35.1	27,741	58.5	41.5
60-64	43,476	1.6	26,717	62.9	37.1	16,759	58.5	41.9

Source: 2019 Kenya Population and Housing Census (KPHC): Labour force analytical report.

Table 2 highlights rural-urban differences in unemployment and reveals distinct gender patterns. Youth suffer most from unemployment, with the different categories of youth accounting collectively for 70.8% of all unemployed persons in the labour force, with the age group 20-24 accounting for the largest share of unemployment (22.5%), followed by the 25-29 group (21.0%).

In rural areas, the average unemployment among youth indicates a male majority of 60.7%, compared to 39.4% for females while urban youth unemployment indicates a more equal, although slightly female, dominated, pattern with females constituting 50.5% and males 49.5% of the unemployed youth population.

Young men in rural areas are more susceptible to unemployment than their female counterparts, but young women in urban settings are the ones who encounter slightly more difficulties in getting a job than young men. There could be numerous reasons for these variations, including gendered labour market expectations, higher male labour force participation, or greater job seeking activity among young men in rural-urban economies. Unemployment statistics demonstrate youth disproportionately bear the brunt of the problem, with rural-urban patterns reflecting deep, seated structural, educational, and gender, related barriers.

Kenya faces a twofold unemployment problem: structurally and demographically. Rapid population growth, a youthful labour force, a lethargic formal sector, and a mismatch between the skills possessed and those demanded by the labor market seem to be the main reasons (World Bank, 2023). Some of the major policies and initiatives that have been undertaken to lower the overall unemployment rate and foster inclusive job creation are: the Kenya Vision 2030 which seeks to create employment through investment in infrastructure, manufacturing, and services; The Kenya Youth Employment and Opportunities Project (KYEOP) that focused on youth training, entrepreneurship, and internships; and the Ajira Digital Program, which is designed to help young people acquire digital skills and connect them to online job opportunities, among others.

Figure 2 illustrate the trends in youth unemployment in Kenya. It offers a visual depiction of how youth unemployment has evolved over the years, highlighting periods of stability, marginal fluctuations, and sharp increases, particularly in recent years.

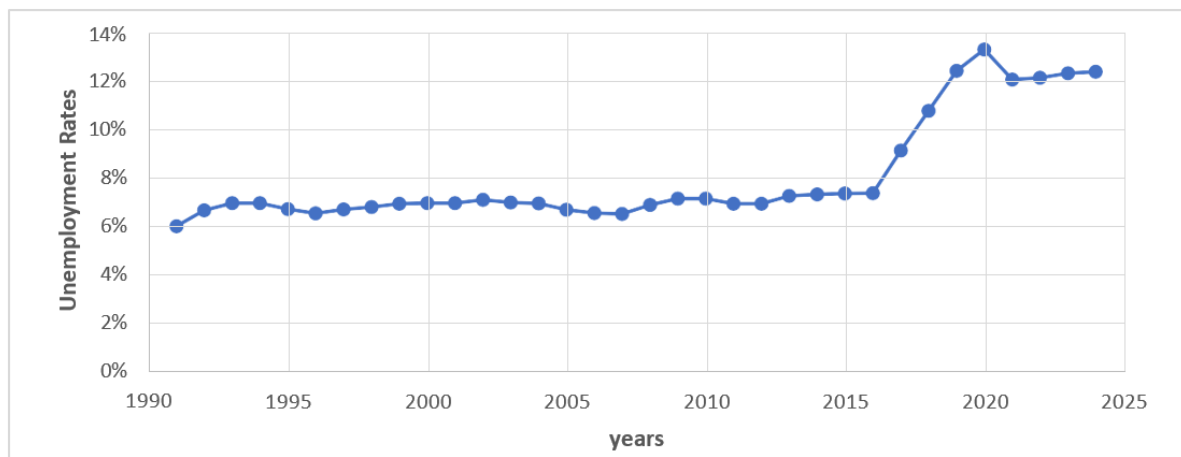


Figure 2: Youth unemployment rates 1990 to 2024

Source of Data: World Bank 2024

The trends in Kenyan youth unemployment are depicted in Figure 2. It provides a graphic representation of the evolution of youth unemployment over time, emphasizing periods of stability, slight variations, and notable increases, especially in recent years. The youth unemployment rate fluctuated between 6% and 8% between 1991 and 2005. Due to slow economic growth, structural problems with job creation, a lack of formal employment opportunities, a greater reliance on informal jobs, and external shocks like the COVID-19 pandemic, unemployment increased from 7% in 2015 to 13.5% in 2020. Youth unemployment appears to have stabilized between 2021 and 2024, albeit at a higher rate, between 12.3% and 12.6%. This indicates that while there may have been some recovery after COVID, structural challenges persist.

With structural challenges longitudinal trends in youth unemployment rates and NEET rates revealed female youth consistently experience higher NEET rates and higher unemployment rates than their male counterparts as demonstrated by figure 3.

Figure 3 illustrates longitudinal trends in youth unemployment rates and NEET rates in Kenya, disaggregated by gender, from 1990 to 2024.



Figure 3: Youth unemployment and NEET trends, by gender

Source of data: KNBS and World Bank 1990-2024

In both the long and short time period the figures show female youth were more likely to be NEET and more likely to be unemployed than their male peers. From 1990 to 2000, the unemployment and NEET rates of both males and females increased steadily, and the latter shows significant increase, mainly as a result of the negative impact of structural adjustment programmes that reduced public employment. Between 2005 and 2015, the two indicators both decreased slightly, and the decrease was attributed to the policy interventions and other youth-targeted programs. However, there was limited gender gains as the benefits appeared skewed towards males than females. The rates were fairly consistent from 2015 to 2023, until the COVID-19 pandemic, which led to a rise in youth unemployment and NEET rates, particularly among young women.

While the unemployment and NEET rate of the male youth appears to be recovering faster, the female youth continued to be more vulnerable, highlighting the fragility of the gender parity achievements. For instance, in 2023, 13.2% of males were unemployed versus 25.5% of females, and more than 28% of young females were NEET compared to 12% of young males. (KNBS, 2023; World Bank, 2024).

Despite extensive government's policies such the Kenya Vision 2030, Kenya Youth Employment and Opportunities Project (KYEOP), Ajira Digital Program, and the Fourth Medium-Term Plan (2023-2027), youth unemployment remains a pressing challenge. These interventions have largely overlooked gender-specific dimensions of the problem, with unique barriers facing young women such as social expectations, caregiving responsibilities, and differential returns to education rarely addressed in existing policies. This study addresses this

gap by critically analyzing the gendered determinants of youth unemployment in Kenya, providing evidence-based insights to inform more inclusive and equitable employment policies

STATEMENT OF THE PROBLEM

One of the most imperative socioeconomic issues challenging developed and developing countries worldwide is youth unemployment. It is a widespread global challenge with distinct gendered implications, affecting social and economic development and individual well-being. Young people are nearly three times more likely to be unemployed than adults, with young women consistently exhibiting higher rates of unemployment and exclusion from the labour market compared to young men (ILO,2023:42). In Sub-Saharan Africa, where rapidly growing youth populations strains on already congested labour markets, the problem is especially acute. Compared to young men, young women have greater rates of unemployment and NEET rates, and their marginalization is aggravated by ingrained gender norms and caregiving responsibilities (AfDB, 2022).

In Kenya, male and female youth unemployment is critical due to the country's youth burgeoning population who are under the age of 35 (Government of Kenya, 2022). Youth unemployment rate has risen steadily from 5.15% in 1980 to 13.4% in 2024 (World Bank, 2024). The economy's inability to create enough jobs to keep up with the expanding labour supply, especially in both the formal and informal sectors, is reflected in the rising unemployment rate. Male youth make up 18.7% of long-term unemployed individuals, whereas female youth make up 63.6% (KNBS, 2024). At over 30%, female youth continue to have the highest NEET rates of any demographic group, indicating issues with social and economic exclusion as well as a notable underutilization of human capital.

Unemployment disparities are further highlighted by the rural-urban dichotomy. In 2020, youth unemployment in rural areas was reported at 17.3%, higher than the 13.8% in urban areas. Despite rising educational attainment, urban young women face particular challenges, with unemployment rates of 25.1% for young women aged 20-24 compared to 18.2% for young men in the same age group (KNBS, 2023). Rural female youth aged 15-29 had an unemployment rate of 16.2% in 2024 compared to 11.3% for rural male youth (KNBS, 2024). Youth unemployment persist as a critical issue despite a number of government programs and policy frameworks, such as the Fourth Medium-Term Plan (2023–2027), the Ajira Digital Program, and the Kenya Youth Employment and Opportunities Project. Although employment has reportedly increased by 15% annually as a result of private sector involvement (KEPSA,

2017), these interventions have mainly ignored the gender-specific aspects in tackling unemployment among the youth. The way that gendered determinants specifically affect youth employment outcomes is not sufficiently examined in the literature and policy approaches currently in use. By critically examining the gendered determinants of youth unemployment in Kenya, this study closes this gap by offering evidence-based insights to support more inclusive and equitable employment policies and strategies that guarantee young men and women make significant contributions to the nation's economic transformation.

RESEARCH OBJECTIVES

The main objective of the study was to investigate the gendered determinants of youth unemployment in Kenya. Specifically, the study sought to:

- i. Analyze gendered determinants of unemployment among youth in Kenya.
- ii. Establish differences in the gendered determinants of youth unemployment in rural and urban areas.

RESEARCH QUESTIONS

- i. What are the gendered determinants of youth unemployment in Kenya?
- ii. How do the gendered determinants of youth unemployment differ in rural and urban areas?

THEORITICAL REVIEW/Framework

HUMAN CAPITAL THEORY

According to the Human Capital Theory, developed by Adam Smith in 1897 and popularized by Jacob Mincer, Theodore Schultz, and Gary Becker in the late 1950s (Goldin, 2016), people with higher levels of human capital are more likely to be employed. While lower levels of human capital raise the risk of unemployment, the theory highlights the role of education, skills, and experience in increasing employment opportunities (Becker, 1993; Schultz, 1961).

This theoretical viewpoint suggests that men and women with lower human capital would have higher unemployment rates. In the context of gendered youth unemployment, disparities in access to education and training result in unfair labor market outcomes. This framework is further extended by Jovanovic's (1979) job-matching theory, which emphasizes that skill mismatches between job seekers and labor market demands frequently result in unemployment. Underemployment or drawn-out job searches are the results of the skills mismatch phenomenon, which happens when educational curricula and industry demands are not in line. The foundation of this study is Human Capital Theory, which highlights the relationship between education, skill development, employability, and productivity. Investing more in the

development of human capital increases efficiency and productivity, which eventually affects trends in youth unemployment. This framework provides a basis for examining gendered unemployment in Kenya.

DUAL LABOUR MARKET THEORY

The segmentation theory was developed by Michael Piore (1970), who emphasized the existence of two distinct labor market segments with unique traits. While the secondary sector is characterized by low-paying, unstable jobs with few opportunities for advancement, the primary sector offers stable employment with good wages and benefits. This segmentation aggravates gender disparities in access to high-quality employment and raises unemployment rates among young people, particularly young women.

Primary sectors are dominated by men, but secondary sectors are disproportionately dominated by women. Gronau (1977) asserts that women are disproportionately responsible for household tasks like childcare and elder care, which limits their capacity to pursue flexible work schedules and career advancement. Gendered social structures and expectations may have an impact on geographic disparities. Segmentation may be more noticeable in rural areas with larger secondary sectors and lower wages, which would disadvantage women who often work informally.

This theory emphasizes how social institutions, such as unions and governmental regulations, influence labor market segmentation and inequality. While recognizing how macroeconomic structures affect patterns of unemployment, it emphasizes the significance of eliminating structural barriers to mobility and fostering inclusive growth.

STRUCTURALIST THEORY

In economics and labour market analysis, structuralist theory arose as a response to classical and neoclassical theories that focused on individual behavior and market mechanisms. Larger social, economic, and institutional structures have a significant influence on labor market outcomes rather than being exclusively determined by individual behavior and market forces (Keynes, 1936; Prebisch, 1950).

Structuralist theory provides a framework for understanding the structural factors influencing labor market outcomes, including gendered youth unemployment, by prioritizing institutional, social, and economic structures over individual behaviors. Changes in structural economic policies and development strategies, like the shift from agriculture to services and manufacturing, have different effects on male and female youth. Gender norms and expectations in emerging industries may make it more difficult for young women to move into new fields. By applying structuralist theory to gendered youth unemployment in Kenya, it is

possible to identify structural barriers that young men and women encounter differently in the labor market and to explain ongoing disparities.

EMPIRICAL REVIEW

Using probit models, Kamau and Wamuthenya (2013) investigated the causes of youth unemployment in Kenyan cities. They found that, the unemployment rates of male and female youths differed noticeably, with female youth unemployment being much higher. Age was found to be a significant factor, and further education increased the likelihood of employment for young women by 14–36% and for young men by 0–12%. However, the study ignored rural contexts that are equally impacted by youth unemployment in favor of concentrating only on urban areas.

Baah-Boateng (2013) investigated factors that contribute to unemployment in Ghana using a probit regression model with cross-sectional data from the Ghana Living Standards Survey. The study found that demand factors have a major impact on unemployment and job creation, with gender and education being particularly significant factors for young people living in urban areas. Unemployment was increasingly impacted by reservation wages.

Msigwa and Kipesha (2013) used logistic regression to examine the factors that contribute to youth unemployment in Tanzania. They discovered that youth in urban areas had a five-fold higher unemployment rate than youth in rural areas, and that young women were more likely to be employed than unemployed. Using ARDL, Sam (2015) examined the economic factors that contribute to youth unemployment in Kenya and showed how population, GDP, foreign direct investment, and external debt have long-term effects on youth unemployment.

Ibrahima and Akrassi (2016) looked into factors influencing the length of unemployment in Côte d'Ivoire for both sexes. Due to low educational attainment and cultural expectations that prioritize housework, women continued to be disproportionately represented in unemployment despite the discovery of an inverse relationship between high education levels and unemployment.

Egessa et al. (2020) investigated how age, residence, gender, and educational attainment significantly affect unemployment in Uganda. The findings showed that people with some education had higher unemployment rates than those with no education, and unemployment likelihood rises with age for females. Household head gender and marital status were more significant than education level in determining youth unemployment.

Ruto (2021) examined factors contributing to youth unemployment in Kenya using an instrumental variable two-stage least square model with data from the World Bank Skills Towards Employment Productivity 2016-2017 survey. Results showed concerning gender

disparity in rural residence (63.5%) and education (13.2%), closing the gender gap differential at 2.5%. The paper found that experience and skill training would produce desired gender-balanced employment outcomes.

RESEARCH METHODOLOGY

Research Design

The study adopted a cross-sectional research design, appropriate for examining relationships between multiple variables at a given point in time (Creswell & Creswell, 2018). Cross-sectional designs are ideal for investigating population characteristics and associations between variables simultaneously. The study utilized data from the 2019 Kenya Population and Housing Census, which provides nationally representative cross-sectional data enabling comprehensive coverage of both rural and urban populations.

Model Specification

The study employed a probit regression model because the dependent variable is binary. The model estimates the likelihood of male and female youth being unemployed and determines the factors behind that probability.

$$YU_{ij} = \begin{cases} 1 & \text{if youth } i \text{ in location } j \text{ is unemployed} \\ 0 & \text{if youth } i \text{ in location } j \text{ is employed} \end{cases}$$

Where; i represents the male or female youth; j represents the location of the youth. The model assumes a latent variable YU_{ij}^* which represents the propensity of a youth being unemployed. YU_{ij}^* is assumed to be linear function of individual characteristics and determinants of being unemployed denoted by X which can be described as;

$$YU_{ij}^* = X_i\beta + \varepsilon \dots \dots \dots 3.1$$

$YU_{ij}^* = 1$ if $YU > 0$ implying that the individual is male or female and unemployed, $YU_{ij}^* = 0$ if $YU \leq 0$ implying that the individual is male or female and not unemployed, X is vector of explanatory variable, β represent coefficient and ε is the error term.

The probability of being unemployed is conditional on individual being male or female, family characteristics and regional, where Φ is the standard normal cumulative density function which is denoted in equation 1.2 which as;

$$\Pr(YU_{ij} = 1/X) = \Phi(X\beta) \dots \dots \dots 3.2$$

Assuming error term (ϵ) follows a normal distribution $\epsilon \sim N(0,1)$ with a probability function, the model is achieved by transforming $X_i\beta$ into a probability. The cumulative distribution represents the Probit model

$$\Pr(YU_{ij} = 1/X) = \Phi(X\beta) \int_{-\infty}^{x\beta} \frac{z^2}{\sqrt{2\pi}} e^2 \dots \dots \dots 3.3$$

The probability of male and female youth unemployment is $YU_{ij} = 1$

$$P(YU_{ij} = 1) = P(YU_{ij}^* > 0) = P(\epsilon > -X_i\beta) = 1 - \Phi(-X_i\beta) = \Phi(X_i\beta) \dots \dots 3.4$$

The probability of male and female youth unemployment is $YU_{ij} = 0$

$$P(YU_{ij} = 0) = 1 - P(YU_{ij} = 1) = 1 - \Phi(X_i\beta) \dots \dots \dots 3.5$$

The likelihood function combines the probabilities of observing both unemployed ($YU_{ij} = 1$) and employed ($YU_{ij} = 0$) individuals. The likelihood for the entire sample of n observations is:

$$L(\beta) = \prod \{ \Phi(X_i\beta)^{YU_{ij}} \{1 - \Phi(X_i\beta)\}^{1-YU_{ij}} \dots \dots \dots 3.6$$

By taking the natural logarithm of the likelihood function, log-likelihood function is

$$\ln L(\beta) = \sum_{n=1}^n ([YU_{ij} \ln \Phi(X_i\beta) + (1 - YU_{ij}) \ln (1 - \Phi(X_i\beta))]) \dots \dots \dots 3.7$$

Separate regression models are estimated for males and females to assess unemployment, with parameters estimated using maximum likelihood methods. The model estimation and interpretation require marginal effects, which accounts for changes in likelihood of an event happening. The marginal effects are computed as the mean of individual-specific effects, allowing for a more intuitive understanding of how key determinants influence the likelihood of youth unemployment across gender groups.

RESULTS AND DISCUSSIONS

Descriptive Statistics

The descriptive statistics, presented in Table 3, revealed the average age of youth in the sample was 26.7 years. Unemployment levels were relatively high, with approximately 86% of youth being unemployed compared to 14% employed. While 78.6% completed primary and secondary education, nearly a fifth (21%) completed higher education (tertiary 13.1% and university 7.9%). Less than 1% had informal education or no formal education.

The rural-urban divide demonstrated that 57% of youth reside in rural areas compared to 43% in urban areas. Nearly two-thirds (61%) of youth were married while 39% were single. About 65% of youth sampled were not skilled while approximately 35% were skilled.

Table 3: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Employment Status				
Employed	0.143	0.35	0	1
Unemployed	0.857	0.35	0	1
Age (in Years)	26.664	4.481	18	34
Level of Education				
No education	0.003	0.051	0	1
Primary/Pre primary	0.395	0.489	0	1
Secondary	0.391	0.488	0	1
Tertiary	0.131	0.337	0	1
University	0.079	0.27	0	1
Informal Education	0.001	0.033	0	1
Area of Residence				
Rural	0.569	0.495	0	1
Urban	0.431	0.495	0	1
Marital Status				
Married	0.614	0.487	0	1
Single/Never married	0.386	0.487	0	1
Skills				
Not Skilled	0.653	0.476	0	1
Skilled	0.347	0.476	0	1

Source: Author's computation (2026)

Empirical Results

Table 4 show the summary of estimation results in analyzing the gendered determinants of unemployment among youth in Kenya.

Table 4: Gendered determinants of youth unemployment

Independent Variables and Description	Marginal effects
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		Male	Female
<i>Age (Reference=20-24 years for males and females)</i>			
Age	Age in years	0.007*** (0.002)	0.013*** (0.001)
Age-Squared	Age in years squared	-0.000*** (0.000)	-0.000*** (0.000)
<i>Education Level (No education =Reference)</i>			
Education Level	Primary/Pre primary	-0.048*** (0.011)	-0.058*** (0.011)
	Secondary	-0.047*** (0.011)	-0.048*** (0.012)
	Tertiary	-0.042*** (0.011)	-0.026** (0.012)
	University	-0.037*** (0.011)	-0.025** (0.012)
	Informal Education	-0.032 (0.019)	0.007 (0.021)
<i>Marital status (Not married/single=Reference)</i>			
Marital Status	Married	-0.068*** (0.001)	-0.028*** (0.002)
<i>Residence (Rural=Reference)</i>			
Area of Residence	Urban Area	0.086*** (0.001)	0.148*** (0.001)
<i>Skills (Not skilled=Reference)</i>			
Skills	Trained/Qualified	-0.032*** (0.001)	-0.015*** (0.002)
No of Observations		419,086	431,166
Wald chi2(10)		52,585.85	7,282.40
Prob > chi2		0.0000	0.0000
Pseudo R2		0.713	0.6908
Log pseudolikelihood		-175323	-153937.1
<i>Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1.</i>			

Source: Author's computation (2026)

As tabulated in Table 4, the regression model was statistically significant, the Wald chi-square statistics of 52,585.85 for male youth and 7,282.40 for female youth are statistically significant at the 1% level ($p < 0.001$), indicating that the explanatory variables are jointly significant in explaining the probability of youth unemployment for male and females' youth.

For both genders, marginal effects of age were positive and statistically significant at the 1% level. A one-year increase in age raises unemployment probability by 0.7 percentage point for male youth compared to 1.3 percentage point for female youth. Negative squared terms confirmed that unemployment risk rises during early youth before eventually declining, consistent with Kirui (2010) and O'Higgins (2017), who found that labour market outcomes improve as youth age due to accumulated work experience, social networks, and job search skills.

Education exhibited a statistically significant negative association with the probability of unemployment for most categories relative to youth with no formal education. Among male youth, having primary or pre-primary education was associated with a 4.8 percentage-point reduction in the probability of unemployment, while secondary education was associated with a 4.7 percentage-point reduction. Tertiary education reduces the probability of unemployment by 4.2 percentage points, while university education reduces it by 3.7 percentage points. All four effects are statistically significant at the 1% level.

Among female youth, primary or pre-primary education was associated with a 5.8 percentage-point reduction in the probability of unemployment, compared with females with no formal education. Secondary education reduces the probability by 4.8 percentage points, while tertiary and university education are associated with reductions of 2.6 and 2.5 percentage points, respectively. The effects of primary/pre-primary and secondary education are statistically significant at the 1% level, while the effects of tertiary and university education are statistically significant at the 5% level. These findings are consistent with those of Hanushek et al. (2021), who discovered that young people with education have a higher employment rate than those without. The findings suggest that while formal education benefits both genders, the reduction was associated with tertiary and university education which is larger for males than for females.

Marital status reduces the probability of unemployment by 6.8 percentage point for male youth and 2.8 percentage point for female youth (1% significance) when compared to being unmarried. According to Addison and Perez (2012), this gendered pattern implies that, in

contrast to young women, marital status strengthens young men's attachment to the workforce, as a result of traditional household roles and caregiving responsibilities.

Living in an urban area raises the risk of unemployment by 8.6 percentage point for male youth and 14.8 percentage point for female youth at 1% significance when compared to living in a rural area. According to Johnsen (2012), the much higher penalty for women implies that young women face particular challenges in urban labour markets, possibly due to gender discrimination, mobility limitations, or mismatches in qualifications.

Skills training was negatively and significantly associated with the probability of unemployment for both genders. Among male youth, being skilled was associated with a 3.2 percentage-point reduction in the probability of unemployment compared with unskilled male youth. Skilled female youth, was associated with a 1.5 percentage-point reduction in the probability of unemployment compared with unskilled female youth. Both effects are statistically significant at the 1% level. This discrepancy implies that young women have more trouble translating their skills into employment outcomes than do men, possibly as a result of gender-segregated labor markets or employer bias. This supports Bandiera et al. (2019) and Kraak (2013), who discovered that structural obstacles prevent women from converting skill development into job opportunities

Differences in the Gendered Determinants in Rural and Urban area

The average marginal effects of male and female and area of residence were tabulated in Table 5 showing the differences in gendered determinants in rural and urban areas.

Table 5: Differences in the gendered determinants in rural and urban area

Dependent Variable: 1 if unemployed, 0 Otherwise				
Marginal effects per area of residence				
Independent Variables	Male-Rural	Female-Rural	Male-Urban	Female-Urban
<i>Age (Reference=20-24 years for males and females)</i>				
Age in years	0.031*** (0.002)	0.010*** (0.001)	-0.004 (0.003)	0.007** (0.003)
Age in years squared	-0.001*** (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000*** (0.000)
<i>Education Level (No education =Reference)</i>				

Education (Primary)	-0.019 (0.013)	-0.035*** (0.011)	-0.078*** (0.020)	-0.093*** (0.025)
Education (Secondary)	-0.006 (0.013)	-0.023** (0.011)	-0.088*** (0.020)	-0.105*** (0.025)
Education (Tertiary)	0.017 (0.013)	0.015 (0.012)	-0.083*** (0.020)	-0.093*** (0.025)
Education (University)	-0.023* (0.013)	-0.036*** (0.012)	-0.072*** (0.020)	-0.087*** (0.025)
Education (Informal)	-0.012 (0.023)	0.010 (0.021)	-0.055 (0.035)	-0.010 (0.043)
<i>Marital status (Not married/single=Reference)</i>				
Marital Status (Married)	-0.037*** (0.002)	-0.039*** (0.001)	-0.110*** (0.002)	-0.002 (0.002)
<i>Residence (Rural = Reference)</i>				
Residence (Urban)	-0.011*** (0.002)	0.001 (0.001)	-0.055*** (0.002)	-0.048*** (0.003)
<i>Skills (Not skilled=Reference)</i>				
Skills	-0.011*** (0.001)	-0.0018*** (0.002)	-0.032*** (0.002)	-0.015*** (0.001)
Observations	229,180	254,397	189,906	176,769
Wald chi2(9)	1,470.85	4,011.89	6,962.02	3,462.45
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.0088	0.0319	0.0371	0.0186
Log pseudolikelihood	-84116.355	-60580.083	-90841.515	-92088.587
<i>Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1.</i>				

Source: Author's computation (2026)

Results for differences in the gendered determinants in rural and urban areas, presented in Table 5, revealed that in rural areas, age marginal effects were positive and statistically significant at 1% level, increasing unemployment probability by 3.1percentage point for rural males and 1.0 percentage point for rural females per one-year increase. In urban areas, age was not statistically significant for males, while for urban females it was positive and significant at 5% level, increasing unemployment by 0.7 percentage point.

In rural areas, primary education reduced unemployment by 3.5 percentage point for females

(1% significance) but was not significant for males. Secondary education reduced unemployment by 2.3 percentage point for rural females (5% significance) but was not significant for rural males. Tertiary education was not statistically significant for either gender in rural areas. University education unexpectedly increased unemployment for rural males by 2.3 percentage point (10% significance) while reducing it for rural females by 3.6 percentage point (1% significance).

At the 1% level, unemployment for both genders in urban areas decreased negatively and statistically significantly at all levels of formal education, from primary to university. Reductions varied from 7.2 percentage point to 8.8 percentage point for urban males and from 8.7 percentage point to 10.5 percentage point for urban females.

According to this pattern, formal education has a significant protective effect against unemployment for both sexes in urban labor markets, but its protective effect is much smaller and primarily limited to females in rural areas. This is in line with research by Ibrahima and Akrassi (2016), Filmer and Fox (2014), and the World Bank (2018), who note that in rural economies where agriculture and informal employment predominate, higher formal education is often not required.

In rural areas, marriage has a nearly symmetrical protective effect, lowering the chance of unemployment by 3.7 percentage point for rural males and 3.9 percentage point for rural females (1% significance). For urban males, marriage significantly reduces unemployment by 11.0% (1% significance). However, for urban females, marriage has no statistically significant effect on the likelihood of unemployment. According to Nordman and Wolff (2009), this pattern suggests that marriage provides urban males with a significant employment advantage while providing urban females with no such benefit.

For urban males and females, skills lower the likelihood of unemployment by 3.2 percentage point and 1.5 percentage point, respectively. The corresponding decreases in rural areas were 0.18 percentage point for women and 1.1 percentage point for men. For both genders, skills are rewarded significantly more in urban labor markets than in rural ones. It appears that structural barriers in rural economies prevent young women from converting skills into employment outcomes, as there was no discernible employment benefit for rural females. This bolsters the claims made by Palmer (2007) and Ruto (2021) that skill development is more successful in labor markets with a higher demand for skilled workers and a variety of economic activities.

CONCLUSIONS

The findings of this study illustrated that youth unemployment in Kenya is influenced by a

combination of demographic, educational, and structural factors. Age, education, and skills training reduce the probability of unemployment for both male and female youth, while being single and residing in urban areas increase unemployment risk.

The study highlighted significant gender disparities in labour market outcomes. The unemployment-reducing effect of education was stronger for young men than for young women at both tertiary and university levels. Returns to education diminished with a 2.6 percentage point reduction for female youth compared to 4.2 percentage points for male youth at the tertiary level, and 2.5 versus 3.7 percentage points, respectively, at the university level. At primary and secondary levels within the urban subsamples, female youth exhibited marginal advantages, while male youth derive greater employment gains from marital status and skills training. Furthermore, the determinants of unemployment differed between rural and urban areas, suggesting that spatial economic structures significantly shape labour market outcomes. Overall, the results confirm that youth unemployment in Kenya is not only a demographic challenge but also a structural issue influenced by gender inequalities and spatial economic disparities.

RECOMMENDATIONS

The recommendations arising from this study were grounded in the empirical finding that youth unemployment in Kenya is shaped by gendered and spatial disparities, necessitating integrated, inclusive, and labour market-oriented interventions in line with Kenya Vision 2030. Since skills and education were found to reduce unemployment more strongly in urban than rural labour markets, the Government of Kenya, the Ministry of Education, TVET institutions, county governments, and private sector employers should strengthen TVET systems through industry-linked training, apprenticeships, revised curricula, and stronger public-private partnerships to improve school-to-work transitions.

Given the limited absorption of educated and skilled youth, especially in rural areas, the national government should, in partnership with county governments, financial institutions, and development partners, expand youth enterprise funds, improve access to affordable credit, and strengthen market linkages for youth-led businesses through incubation, mentorship, and digital innovation platforms. The findings equally showed that female youth, despite benefiting from education, continue to face higher unemployment, particularly in urban areas, which calls for gender-responsive labour market policies and targeted employment programs to enforce equal employment opportunity and reduce discriminatory hiring practices.

Finally, because urban labour markets offer higher returns to education and skills but also higher competition, while rural areas face limited job opportunities, the government should

promote labor-intensive industrial growth by investing in high-employment sectors such as manufacturing, agribusiness, construction, and the digital economy. This can be supported through targeted investments, tax incentives, and the development of special economic zones and industrial parks as medium- to long-term strategies for structural job creation.

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